

Excerpted Summary Testimony 1/28/00 Department of Energy Hearing  
 JAN 28 2000 Connie Kline - 38531 Dodds Landing Dr., Willoughby Hills, OH 44094, 440-946-9012

Thank you for this opportunity to provide input on the July 1999 "Draft Environmental Impact Statement (EIS) for a Geologic Repository for the Disposal of Spent Nuclear Fuel (SNF) and High-Level Radioactive Waste (HLRW) at Yucca Mt. Nevada." I wish to briefly address the so-called "No Action Alternative" outlined in the EIS:

...under which DOE would not build a repository at the Yucca Mt. site, and the SNF and HLRW would remain at 72 commercial and 5 DOE sites across the United States. The DOE's Preferred alternative is to proceed with a geologic repository...The analyses in this EIS did not identify any potential environmental impacts that would be a basis for not proceeding. (pp. S-2 & S-10)

The Concerned Citizens Network and Ohio CARE do not advocate for a geological repository and recognize that some hydrogeological uncertainties exist at Yucca Mt. and that transport of radioactive waste poses potential problems. However, radioactive waste CANNOT remain at reactor sites which are the least suitable locations from a health, safety, and environmental standpoint. U.S. nuclear power plants, all of which are built on potable or environmentally sensitive bodies of water, were never intended as radioactive waste sites, a fact acknowledged by both the NRC and the DOE.

The DOE Draft Environmental Impact Statement emphasizes repeatedly:

**There could be large public health and environmental consequences under the No-Action Alternative...The storage facilities at the 72 commercial and 5 DOE sites would deteriorate and radioactive contaminants would escape and enter the environment (causing) widespread contamination to the atmosphere, soil, surface water and groundwater at the 77 sites across the United States with resulting human health impacts.** (pp. S-29, S-57, S-64)

It is perhaps worth noting that:

1. The EIS estimates the costs for Yucca Mt. to be \$28.8 billion while "the cost for the No-Action Alternative will range from \$51.5 billion to \$56.7 billion" or nearly twice as much. (pp. S-24, s-30)
2. According to the NRC, "Approximately 1300 spent fuel shipments have been made since 1971 with no radiological releases to the environment from accidents." (NRC No. 99-253, 11/30/99)

One would be hard-pressed to find less environmentally suitable sites than Ohio's two reactors - Perry and Davis Besse - neither of which meet the NRC's minimum criteria for a radioactive waste facility in 10CFR61 which "Contains common sense siting requirements that address the natural characteristics of the site and other factors.":

1. **Sites with known natural resources are to be avoided.** Both reactors sit on the shores of Lake Erie, part of the world's largest fresh water system and source of drinking water for millions of people.
2. **A site must be well-drained and free of flooding or ponding.** Davis Besse "is located on a 954 acre wetlands march in a coastal flood zone" which experienced such a severe flood in 1972 that the entire site, including the preoperational reactor, were submerged for days and people had to be airlifted or rescued by boat. The Davis Besse site experiences frequent flooding, especially during spring thaws, when roads leading to and from the plant are impassable.
3. **A site must be located far enough above the water table to prevent groundwater intrusion.** According to the *Final Safety Analysis Report for the Perry Plant (FSAR)*, "Test borings at the Perry site indicate groundwater levels ranging from 3 to 5 feet below the ground surface in the main plant area...Within a 2 mile vicinity of the Perry site, there are 295 shallow residential wells." (p. 2.5-151, 7/19/83)

From testimony and court documents presented during 1986 and 1987 hearings in which the State of Ohio vigorously opposed plans to dispose of radioactive waste onsite at Davis Besse, "Toledo

Edison verified the extent of the groundwater and its permeability...Groundwater was released into Lake Erie through the permeable bedrock aquifer that extends into the Lake." (Transcript p. 49, Docket # 50-346-NPF-3; Final Safety Analysis Rept Vol. VI, p. 11-166-74, 1973; Final Environmental Statement p. 5-26,7, 1973)

4. **Sites with seismic activity and erosion must be avoided.** The Perry area is subject to earthquakes like the one that occurred on January 31, 1986, the epicenter of which was less than 10 miles from the plant and which registered 5.0 on the Richter Scale. There are frequent earthquakes of smaller magnitude in the area, and many geologists predict an earthquake of greater magnitude than the Perry plant was built to withstand.

According to the Perry FSAR, there is a known "offshore fault intersecting the cooling water tunnels." A huge chasm - "30 feet wide and 20 feet deep in the bedrock running through about two-thirds of the Perry site's excavation" was discovered during construction and "filled with concrete", which could further compromise the stability of the site. (p. 2.5-3)

Erosion, which is serious problem at both Perry and Davis Besse, caused an entire park just west of the Perry plant to fall into Lake Erie several years ago and has forced multi-million dollar control projects along the plant shoreline, which has receded to within 250 feet of the closest safety structure at Perry, the water pump station.

The environmental impact statements of many reactors were done more than a quarter of a century ago. According to the Army Corps of Engineers, older reactors were licensed under currently outdated environmental guidelines and could not be built on their present sites today. The Solid Waste Division of the Ohio EPA has stated that both the Perry and Davis Besse sites would be deemed unsuitable for an ordinary solid waste (i.e. garbage) facility.

**If Yucca Mountain, a remote, unpopulated former nuclear weapons test site in the Nevada desert may be hydrogeologically unsuitable for radioactive waste, how can eroding, seismically unstable, flood-prone areas along the Great Lakes and other major U.S. waterways possibly be considered for radioactive waste disposal?!**

According to an 8/19/94 DOE document *High-Level Radioactive Waste*:

The average-sized reactor produces approximately 2,000 metric tons of spent fuel annually...If reactors are operated for their licensed lifetimes, there will ultimately be a total of approximately 86,000 metric tons of spent fuel.

Each loaded dry cask at a reactor site contains 5 million curies of radioactivity - the radioactive equivalent of 240 Hiroshima bombs! At-reactor dry cask storage was promulgated by generic NRC rulemaking which prohibits adjudicated, site-specific hearings once a cask design is "approved." In sharp contrast, the Nuclear Waste Policy Act rightfully mandates Presidential recommendation, two acts of Congress, and state gubernatorial or legislative approval to site a repository. As reactor spent fuel pools fill to capacity, the NRC has exempted utilities from preoperational testing and allowed known defective casks to be loaded with irradiated fuel as was the case at Davis Besse where:

- A. Welds were ground too thin, reducing safety margins by 20%.
- B. Deficiencies were discovered in the concrete aggregate used in the horizontal storage modules.
- C. Hydrogen buildup could result in a hydrogen explosion (see below)
- D. Quality assurance problems arose with interior coating and exterior paint.

For these and many other reasons, Davis Besse has stopped dry casking and will reconfigure and rerack the spent fuel pool.

Warnings about the unsuitability of dry cask storage for waste management have gone largely unheeded with resultant serious consequences:

1. A May 1993 NRC study *Characteristics of Spent Nuclear Fuel and Cladding Relevant to HLW Source Term* concludes that dry cask storage will have a negative affect on long-term spent fuel management:

The dry environment has the potential of producing further fuel cladding oxidation, increased cladding stresses, and deformation as a result of rod internal pressure and volume expansion due to air permeating through any pinholes and incipient cracks in the cladding. These spent fuel and cladding alterations could be quite accelerated under dry storage conditions since the temperatures are much higher than in wet storage.

The study estimates that 5,000 fuel rods will have leaked at the time of dry storage and concludes that pellet/cladding/container corrosion is "inadequately addressed."

2. In a 12/30/93 letter to the NRC, U.S. EPA Region 5 Administrator Vladas Adamkus stated, "We believe there is potential for significant adverse impact to the Great Lakes and the Mississippi River which was not fully assessed in the generic environmental assessment prepared for dry cask storage."

3. On 12/1/94 NRC soil expert Ross Landsman wrote then NRC Chairman Ivan Selin stating that continued dry cask storage at nuclear power plants could lead to "catastrophic consequences."

4. In August 1994, the NRC discovered 194 defects, including faulty welds, in two already loaded dry casks at the Palisades reactor in Michigan. Though the NRC requires a utility to be able to unload a dry cask within 24 hours, the procedure is extremely risky because returning fuel at temperatures over 400 degrees to spent fuel pool temperatures of 100 degrees could cause an uncontrolled blast of highly radioactive steam in an area without containment.

5. In May 1996 a hydrogen explosion, with sufficient force to lift a 3 ton lid on its edge, occurred during loading of a dry cask at the Point Beach reactor in Wisconsin. A second hydrogen burn occurred at Point Beach later in 1996. On June 9, 1999, two hydrogen fires occurred during loading of dry casks at the Palisades reactor in Michigan, and on July 12, 1999, problems with hydrogen gas prevented loading of the first dry cask at the Trojan reactor in Oregon.

In 1957, a U.S. National Academy of Sciences (NAS) panel cautioned that "unlike the disposal of any other type of waste, the hazard related to radioactive wastes is to great that no element of doubt should be allowed to exist regarding safety." In 1960, the NAS again warned that the waste issue should be resolved BEFORE licensing new nuclear facilities. These warnings were ignored, and now, 40 years later, we are no closer to a waste solution or even acceptable management techniques. In 1995, Daniel Dreyfus, director of civilian nuclear waste management for the DOE called radioactive waste, "the most challenging environmental problem facing the nation and the world."

When I chaired the Ohio Sierra Club's Nuclear Committee, policies were adopted that:

prohibit the construction of new commercial nuclear power plants and extended at-reactor radioactive waste storage or disposal, including dry cask and call for the phased closure and decommissioning of operating reactors which will result in the termination of production fuel cycle waste and the development and implementation of national and global policies which will curb energy over-use and promote conservation, efficiency, and alternative renewable, nonpolluting, non-nuclear energy sources.

The time is long overdue for Congress and the Federal Government to mitigate the potentially irrevocable damage caused by this unsolvable waste stream.